




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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,546	10/10/2003	Roger Proksch	14083-004002	2640
20985	7590	11/30/2004	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			LARKIN, DANIEL SEAN	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/683,546		PROKSCH, ROGER	
	<b>Examiner</b>		<b>Art Unit</b>	
	Daniel S. Larkin		2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were received on 11 November 2004. These drawings are approved by the examiner.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(f) he did not himself invent the subject matter sought to be patented.

3. Claims 9, 12, 13, 22-25, 28, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,172,002 (Marshall).

With respect to the limitations of claim 9, the reference to Marshall discloses a microscope base/frame; a piezoelectric actuator (18) having a lower, first end fixed to a base/microscope frame and an upper, second free end; a first reflector assembly (34) fixed proximate the free end of the actuator (18); a first radiation source (20a) fixed to the frame; and a first electromagnetic radiation detector (26). Since a stage (14) holding the reflector assembly (34) is movable in the X, Y, and Z-planes, the changes in the light received by the stationary detector (26) would be indicative of movement of the piezoelectric actuator (18).

With respect to the limitations of claim 12, the reference to Marshall discloses an apparatus for measuring movement of an actuator (18) comprising an optical measuring device including a light source (20, 20A) for generating a light beam, the measuring device being configured to change the direction of the beam in response to movement of the actuator (18); and a sensor/detector (26) to detect the beam and generate a signal indicative of movement of the actuator (18).

With respect to the limitation of claim 13, the reference to Marshall discloses that the light source is a laser diode (20A).

With respect to the limitation of claim 22, the reference to Marshall discloses a lens (22) located between the light source (20, 20A) and a radiation detector (26).

With respect to the limitations of claim 23, the reference to Marshall discloses in the embodiments, as shown in Figures 2 and 3, a light source (20) mounted to the free end of the actuator (18).

With respect to the limitation of claim 24, the reference to Marshall discloses a scanning probe microscope.

With respect to the limitation of claim 25, the reference to Marshall discloses that the actuator (18) is a PZT or Piezoelectric Transducer.

With respect to the limitations of claim 28, the reference to Marshall discloses an apparatus for measuring movement of an actuator comprising an optical measuring device including a source of electromagnetic radiation (20A) that generates a beam; and a sensor/radiation detector (26) that detects a position of the beam, wherein, in

response to movement of the actuator (18), the optical measuring device changes the position of the beam.

With respect to the limitations of claim 37, the reference to Marshall discloses that the actuator (18) is a PZT or Piezoelectric Transducer.

4. Claims 9-13, 22, 25, 28, 36, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,714,682 (Prater et al.).

With respect to the limitations of claim 9, the reference to Prater et al. discloses a scanning stylus atomic force microscope having a first tube scanner (12), made up of one or more piezoelectric tubes, a second scanner comprising a mounting member (42) for moving in the Z-direction, a first reflector assembly/beam splitter (65) located proximate the free end of the actuator (42), a first, fixed radiation source (10); and a first radiation/position detector (66). The reference discloses, col. 9, lines 62-67 through col. 10, lines 1-16, that the position detector (66) may be used to measure, calibrate, or control the motion of the scanner (12). Although not expressly shown, a microscope frame is inherent to an atomic force microscope.

With respect to the limitation of claim 10, the reference discloses a cantilever (14) having a reflective surface fixed to the scanner (12) via a mounting member.

With respect to the limitation of claim 11, the reference discloses, as shown in Figure 7, a second radiation/position detector (16) that receives light reflected from the cantilever's reflective surface.

With respect to the limitations of claim 12, the reference to Prater et al. discloses an apparatus for measuring movement of an actuator comprising an optical measuring device including a light source (10) that generates a light beam, the measuring device being configured to change the direction of the beam in response to movement of the actuator (42); and a sensor (16) to detect the beam and generate a signal indicative of movement of the actuator (42).

With respect to the limitation of claim 13, the reference to Prater et al. discloses the light source (10) as being a laser.

With respect to the limitation of claim 22, the reference to Prater et al. discloses the placement of a lens (60, 63) between the light source (10) and the sensor/position detector (66).

With respect to the limitation of claim 24, the reference to Prater et al. discloses an atomic force microscope, which is a synonym for a scanning probe microscope.

With respect to the limitation of claim 25, the reference to Prater et al. discloses that the actuator is a piezoelectric translator.

With respect to the limitations of claim 28, the reference to Prater et al. discloses an apparatus for measuring movement of an actuator comprising an optical measuring device including a source of electromagnetic radiation (10) that generates a beam; and a sensor (16) to detect a position of the beam, wherein, in response to movement of the actuator, the optical measuring device changes the position of the beam.

With respect to the limitation of claim 36, the reference to Prater et al. discloses at least one lens (60, 63) that moves in conjunction with the actuator (12).

With respect to the limitation of claim 37, the reference to Prater et al. discloses that the actuator is a piezoelectric translator.

5. Claims 1-37 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

The reference to US 6,530,268 (Massie) has all of the same drawing figures as does Applicant and also discloses all that is claimed by Applicant. This application, Serial No. 10/683,546, with only Roger Proksch as a single inventor claims to be a continuation of U.S. Serial No. 10/142,646, with Roger Proksch again as a single inventor. Application Serial No. 10/142,646 in turn claims to be a continuation of U.S. Serial No. 09/803,268 which discloses Roger Proksch and James Massie as co-inventors. The reference recited above, with James Massie as a sole inventor, is claimed to be a continuation-in-part of U.S. Serial No. 09/803,268.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,172,002 (Marshall).

The reference to Marshall discloses an optical measuring device including a light source (20) for generating a beam; a sensor (26) that detects a position of the beam. The light source (20) is mounted on a stage (14) that is fixed to the free end of a piezoelectric actuator (18).

With respect to the limitation of claim 33, the light source generates a light beam in the Z-direction. The piezoelectric actuator has the ability to move the stage (14) and the light source in the X, Y, and Z-directions. Therefore, the light source has the ability to produce a light beam that is directed orthogonally to the movement of the actuator when the actuator moves in the X and Y-directions only.

With respect to the limitation of claim 34, the reference discloses the placement of a lens (22) between the light source (20) and the detector (26).

With respect to the limitation of claim 35, the reference shows an embodiment, as shown in Figures 5 and 6, whereby a light source (20A) is fixed relative to the actuator (18) and has the ability to direct a beam orthogonally to the movement of the actuator (18) when the actuator displaces the stage (14) in the Z-direction.

### ***Response to Arguments***

8. Applicant's arguments filed 27 September 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that Proksch is the sole inventor of this application, page 35, lines 5-11, the examiner argues that the applicant has not provided any proof to support this position. First, the reference to Massie is a valid



patent disclosing all of the subject matter claimed in this application. Secondly, the amended specification of applicant's application discloses that this application, U.S. Serial No. 10/683,546, has some overlapping subject matter including some claims with U.S. Serial No. 09/803,268, which is co-invented by James Massie and Robert Proksch. Thirdly, the Patent Office recognizes that this application, U.S. Serial No. 10/683,546, is a continuation of U.S. Serial No. 10/142,646, which is a continuation of U.S. Serial No. 09/803,268. Since this application is a continuation of 09/803,268, then the subject matter of both applications should be the same and the inventorship of both applications should be the same as well. Applicant does not appear to be claiming any subject matter that has not been previously disclosed in US 6,530,268 which would justify the argument that James Massie should not be considered an inventor in this application.

In response to applicant's argument that the reference to Marshall (US 5,172,002) fails to disclose a piezoelectric actuator having a second free end, page 35, line 35 through page 36, lines 1-5, the examiner respectfully disagrees. The reference to Marshall discloses, col. 4, lines 28-31, that the piezoelectric actuator (18) has a lower, first end which is solidly anchored and an upper, second end which is free. The reference further discloses, col. 4, lines 34-39, that a sample stage (14) is attached to the free, movable end of actuator (18) so as to be movable in the X, Y, and Z coordinate directions. The claim provides no explicit definition of how the term "free" is to be interpreted. Does free mean able to move in multiple coordinate directions, as disclosed in the reference to Marshall and applicant's disclosure; or is "free" defined as lacking any attachment to actuator, which neither the Marshall disclosure nor applicant's

disclosure can support, since both actuators have structure attached to the non-fixed end of the actuator?

In response to applicant's argument that the measuring device of Marshall fails to change the position of the beam, page 36, lines 10-12, the examiner respectfully disagrees. Applicant is correct in arguing that the position of the stage (14) attached to the free end of the actuator (18) is changed; however, a retroreflector/corner cube (34), as shown in Figure 6, is provided for directing a light beam to a position sensitive detector (26). The light beam forms an image or movable light spot (24), which is incident on the surface of the detector (26). As the actuator (18) moves, the stage (14) and the corner cube (36) also moves thus changing the location of the spot (24) on the detector (26). A second embodiment, as shown in Figures 1 and 3, shows a light source (20) attached to the stage (14), such that movement of the actuator (18) and stage (14) causes movement of the beam leaving the light source (20); thus moving the light spot (24) along the surface of the detector (26).

In response to applicant's argument that the reference to Prater et al. (US 5,714,682) fails to disclose an actuator having a second free end, page 36, lines 14-16, the examiner respectfully disagrees. The reference to Prater et al. discloses a scanner (12) that is comprised of a plurality of actuators (12, 42), whereby the lower end of actuator (42) is free to move a cantilever (14) with respect to a sample surface. As to the upper end being fixed, it is the examiner's contention that the upper end of the scanner (12) must be attached to some unshown structural means, otherwise all of the

weight of the device would be supported by the tip of the cantilever, which is not the case.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2856

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Larkin  
AU 2856  
22 November 2004



**DANIEL S. LARKIN**  
**PRIMARY EXAMINER**